

In the Claims:

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1. (Currently amended) A method of enabling user interaction with computer software running in a computer system via:

an interface surface containing information relating to the computer software and including having coded data indicative of a drawing field disposed in or on the interface surface; and

a sensing device which, when placed in an operative position relative to the interface surface, senses at least some of the coded data and generates indicating data indicative of the drawing field using at least some of the sensed coded data, and generates movement data indicative of the sensing device's movement relative to the interface surface;

the method including the steps of, in the computer system:

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- (a) receiving the indicating data from the sensing device;
  - (b) receiving the movement data from the sensing device;
  - (c) identifying the drawing field from the indicating data; and
  - (d) operating the computer software at least partly in reliance on the movement data, and in accordance with instructions associated with the drawing field.

2. (Original) A method according to claim 1, the method further including the steps of, in the computer system, associating the movement data with the drawing field.

3. (Original) A method according to claim 1, including the step of sending, in the computer system, data to the computer software indicative of at least the drawing field.

4. (Original) A method according to claim 2, wherein the drawing field is associated with a visible drawing zone defined on the interface surface.

5. (Original) A method according to claim 1, wherein the coded data includes at least one tag, each tag being indicative of the drawing field.

6. (Original) A method according to claim 5, wherein the tags are also indicative of points within the drawing field.

7. (Original) A method according to claim 6, wherein each of the tags includes:  
first identity data defining a relative position of that tag; and  
second identity data identifying the drawing field.

8. (Original) A method according to claim 7, wherein the relative position is defined in relation to the drawing field.

9. (Currently amended) A method of enabling user interaction with computer software running in a computer system via:

an interface surface containing information relating to the computer software and

~~including having~~ coded data indicative of an identity of the interface surface/~~disposed in or on the interface surface; and~~

a sensing device which, when placed in an operative position relative to the interface surface, senses at least some of the coded data and generates indicating data indicative of the identity of the interface surface, and generates movement data indicative of the sensing device's movement relative to the interface surface;

the method including the steps of, in the computer system:

- (a) receiving the indicating data from the sensing device;
- (b) receiving the movement data from the sensing device;
- (c) performing written gesture recognition in relation to at least some of the movement data; and
- (d) in the event that a written gesture is recognised, operating the computer system in accordance with instructions associated with the written gesture and the interface surface.

10. (Original) A method according to claim 9, wherein the selection gesture includes circumscribing or underlining at least some of the information.

11. (Original) A method according to any one of the preceding claims, wherein the sensing device includes at least one acceleration measuring device for measuring acceleration of the sensing device as it is used to draw the hand-drawn user input onto the surface, the movement data being generated by periodically sampling the acceleration of the sensing device as it is used to draw the hand-drawn user input onto the surface.

12. (Original) A method according to claim 11, further including the step of generating movement data in the form of a locus of the sensing device in relation to the surface, the locus being determined by ascertaining relative displacement of the sensing device.

13. (Original) A method according to claim 12, wherein the relative displacement is obtained by doubly integrating the acceleration with respect to time.

14. (Original) A method according to claim 12 or 13, wherein the acceleration measuring device includes one or more accelerometers configured to measure at least two orthogonal components of acceleration.

15. (Original) A method according to any one of claims 1 to 10, wherein position elements are disposed on the interface surface, the sensing device being configured to periodically sense position elements as it is used to draw the hand-drawn user input onto the surface, the method including the step of generating the movement data in the form of a locus of the sensing device in relation to the surface by ascertaining relative displacement of the sensing device over time with respect to at least one of the position elements.

16. (Original) A method according to claim 15, wherein the position elements are

disposed on the surface as a regular array of dots, lines or other formations.

17. (Original) A method according to claim 15, wherein the position elements are disposed on the surface stochastically.

18. (Previously amended) A method according to any one of claims 1 to 10, wherein the movement data is generated by ascertaining relative movement of one or more motion sensing elements rotatably mounted to the sensing device for contact with the surface while the sensing device is used to draw the hand-drawn user input thereon.

19. (Original) A method according to claim 18, wherein the motion sensing elements include one or more rollerballs mounted for rotation within a constraining housing disposed substantially within the sensing device.

20. (Original) A method according to claim 19, wherein components of rotation of the rollerball, due to movement of the sensing device when drawing the hand-drawn user input onto the surface, are periodically measured.

21. (Original) A method according to claim 20, wherein the components of rotation of the rollerball due to movement of the sensing device by the user when drawing the hand-drawn user input onto the surface are measured by means of:

rollers disposed within the constraining housing for rotation, the rollers being configured to be driven by contact with the rotating rollerball; or

optical sensing of rotation of the rollerball with respect to the constraining housing.

22. (Original) A method according to claim 7, wherein the relative position is defined in relation to a plurality of the other tags.

23. (Original) A method according to claim 7, wherein the relative position is defined in relation to the interface surface.

24. (Original) A method according to claim 7, wherein the first identity data identifies stored information defining the relative position, the stored information not being stored on the interface surface.

25. (Original) A method according to claim 24, wherein the first identity data and the second identity data together identify stored information defining the relative position.

26. (Original) A method according to claim 9, wherein the coded data includes at least one tag, each tag being indicative of the drawing field.

27. (Original) A method according to claim 26, wherein the tags are also indicative of points of the interface surface.

28. (Original) A method according to claim 27, wherein each of the tags includes:  
first identity data defining a relative position of that tag; and  
second identity data identifying the interface surface.

29. (Currently amended) A system for enabling user interaction with computer software running in a computer system via:

an interface surface containing information relating to the computer software and ~~including having~~ coded data indicative of a drawing field disposed in or on the interface surface; and

a sensing device which, when placed in an operative position relative to the interface surface, senses at least some of the coded data and generates indicating data indicative of the drawing field using at least some of the sensed coded data and generates movement data indicative of the sensing device's movement relative to the interface surface;

the computer system being configured to:

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- (a) receive the indicating data from the sensing device;
  - (b) receive the movement data from the sensing device;
  - (c) identify the drawing field from the indicating data; and
  - (d) operate the computer software at least partly in reliance on the movement data, and in accordance with instructions associated with the drawing field.

30. (Original) A system according to claim 29, the computer system further being configured to associate the movement data with the drawing field.

31. (Original) A system according to claim 29, the computer system being configured to send data to the computer software indicative of at least the drawing field.

32. (Original) A system according to claim 30, wherein the drawing field is associated with a visible drawing zone defined on the interface surface.

33. (Original) A system according to claim 29, wherein the coded data includes at least one tag, each tag being indicative of the drawing field.

34. (Original) A system according to claim 33, wherein the tags are also indicative of points within the drawing field.

35. (Original) A system according to claim 34, wherein each of the tags includes:  
first identity data defining a relative position of that tag; and  
second identity data identifying the drawing field.

36. (Original) A system according to claim 35, wherein the relative position is defined in relation to the drawing field.

37. (Currently amended) A system of enabling user interaction with computer software running in a computer system via:

an interface surface containing information relating to the computer software and ~~including having~~ coded data indicative of an identity of the interface surface disposed in or on the interface surface; and

a sensing device which, when placed in an operative position relative to the interface surface, senses at least some of the coded data and generates indicating data indicative of the identity of the interface surface using at least some of the sensed coded data and generates movement data indicative of the sensing device's movement relative to the interface surface;

the computer system being configured to:

- (a) receive the indicating data from the sensing device;
- (b) receive the movement data from the sensing device;
- (c) perform written gesture recognition in relation to at least some of the movement data; and
- (d) in the event that a written gesture is recognised, operate the computer software in accordance with instructions associated with the written gesture and the interface surface.

38. (Previously amended) A system according to claim 37, wherein the written gesture includes circumscribing or underlining at least some of the information.

39. (Original) A system according to any one of claims 29 to 38, wherein the sensing device includes at least one acceleration measuring device for measuring acceleration of the sensing device as it is used to draw the hand-drawn user input onto the surface, the movement data being generated by periodically sampling the acceleration of the sensing device as it is used to draw the hand-drawn user input onto the surface.

40. (Currently amended) A system according to claim 39, wherein the computer system is configured to generating the movement data in the form of a locus of the sensing device in relation to the surface, the locus being determined by ascertaining relative displacement of the sensing device.

41. (Original) A system according to claim 40, wherein the relative displacement is obtained by doubly integrating the acceleration with respect to time.

42. (Original) A system according to claim 40 or 41, wherein the acceleration measuring device includes one or more accelerometers configured to measure at least two orthogonal components of acceleration.

43. (Previously Amended) A system according to any one of claims 29 to 42, wherein position elements are disposed on the interface surface, the sensing device being configured to periodically sense position elements as it is used to draw the hand-drawn user input onto the surface, the computer system being configured to generate the movement data in the form of a locus of the sensing device in relation to the surface by ascertaining relative displacement of the sensing device over time with respect to at least one of the position elements.

44. (Original) A system according to claim 43, wherein the position elements are disposed on the surface as a regular array of dots, lines or other formations.

45. (Original) A system according to claim 43, wherein the position elements are disposed on the surface stochastically.

46. (Original) A system according to any one of claims 29 to 45, wherein the movement data is generated by ascertaining relative movement of one or more motion sensing elements rotatably mounted to the sensing device for contact with the surface while the sensing device is used to draw the hand-drawn user input thereon.

47. (Original) A system according to claim 46, wherein the motion sensing elements include one or more rollerballs mounted for rotation within a constraining housing disposed substantially within the sensing device.

48. (Original) A system according to claim 47, wherein components of rotation of the rollerball, due to movement of the sensing device when drawing the hand-drawn user input onto the surface, are periodically measured.

49. (Original) A system according to claim 48, wherein the components of rotation of the rollerball due to movement of the sensing device by the user when drawing the hand-drawn user input onto the surface are measured by means of:

rollers disposed within the constraining housing for rotation, the rollers being configured to be driven by contact with the rotating rollerball; or

optical sensing of rotation of the rollerball with respect to the constraining housing.

50. (Original) A system according to claim 35, wherein the relative position is defined in relation to a plurality of the other tags.

51. (Original) A system according to claim 35, wherein the relative position is defined in relation to the interface surface.

52. (Original) A system according to claim 35, wherein the first identity data identifies stored information defining the relative position, the stored information not being stored on the interface surface.

53. (Original) A system according to claim 52, wherein the first identity data and the second identity data together identify stored information defining the relative position.

54. (Original) A system according to claim 37, wherein the coded data includes at least one tag, each tag being indicative of the interface surface.

55. (Original) A system according to claim 54, wherein the tags are also indicative of points on the interface surface.

56. (Original) A system according to claim 55, wherein each of the tags includes:  
first identity data defining a relative position of that tag; and

second identity data identifying the drawing field.

57. (Currently Amended) A method to enable a user to interact with computer software running in a computer system utilizing a form printed onto a surface, the form including information relating to the computer software, the surface having coded data indicative of a drawing field relating to the computer software disposed in or on the surface, the method including the steps of:

providing the form to the user;

receiving, in the computer system, indicating data and movement data from a sensing device, the indicating data indicative of the drawing field, the movement data indicative of movement of the sensing device relative to the form, the sensing device, when placed operatively relative to the drawing field, generating the indicating data based at least partially on sensing at least some of the coded data and substantially simultaneously generating the movement data; and

identifying, in the computer system and from the indicating data, the drawing field, and

operating the computer software at least partially in reliance on the movement data and on instructions associated with the drawing field.

58. (Previously added) The method of claim 57, which includes printing the form in response to receiving, in the computer system, a request for the form.

59. (Previously added) The method of claim 57, which includes causing the form and the coded data to be printed onto the surface substantially simultaneously.

60. (Previously added) The method of claim 57 further including, in the computer system, associating the movement data with the drawing field.

61. (Previously added) The method of claim 57, including the step of performing written gesture recognition on at least some of the movement data.

62. (Previously added) The method of claim 57 further including the step of, in the computer system, recognizing whether the movement data is indicative of a written gesture drawn on the surface by the user.

63. (Previously added) The method of claim 61 wherein, in the event that the written gesture is recognized, operating the computer system in accordance with instructions associated with the written gesture.

64. (Previously added) The method of claim 62 wherein the written gesture includes a selection gesture.

65. (Previously added) The method of claim 61 wherein the selection gesture includes circumscribing or underlining at least some of the information.

66. (Previously added) The method of claim 57, including the step of identifying the user.
67. (Previously added) The method of claim 66, wherein the step of identifying the user includes using the movement data.
68. (Previously added) The method of claim 66, further including the step of receiving, in the computer system, data indicative of an identity of the user.
69. (Previously added) The method of claim 57, further including the step of receiving, in the computer system, data from a memory of the sensing device, the data being indicative of an identity of the user.
70. (Previously added) The method of claim 57, including the step of sending, in the computer system, data to the computer software indicative of at least the drawing field.
71. (Previously added) The method of claim 57, wherein the drawing field is associated with a visible drawing zone defined on the surface.
72. (Previously added) The method of claim 57, wherein the sensing device includes at least one acceleration measuring device for measuring acceleration of the sensing device as it is used on the surface, the movement data being generated by periodically sampling the acceleration of the sensing device as it is used on the surface.
73. (Previously added) The method of claim 57, further including the step of generating movement data in the form of a locus of the sensing device in relation to the surface, the locus being determined by ascertaining relative displacement of the sensing device.
74. (Previously added) The method of claim 73, wherein the relative displacement is obtained by doubly integrating the acceleration with respect to time.
75. (Previously added) The method of claim 72, wherein the acceleration measuring device includes one or more accelerometers configured to measure at least two orthogonal components of acceleration.
76. (Previously added) The method of claim 57, wherein elements are disposed on the surface, the sensing device being configured to periodically sense the elements as it is used on the surface, the method including the step of generating the movement data by ascertaining relative displacement of the sensing means over time with respect to at least one of the elements.
77. (Previously added) The method of claim 76, wherein the elements are disposed on the surface as a regular array of dots, lines or other formations.
78. (Previously added) The method of claim 76, wherein the elements are disposed on the surface stochastically.
79. (Previously added) The method according to claim 76, wherein the coded data



includes the elements.

80. (Previously added) The method of claim 57, wherein the movement data is generated by ascertaining relative rotation of one or more motion sensing elements rotatably mounted to the sensing device for contact with the surface while the sensing device is used thereon.

81. (Previously added) The method of claim 80 wherein the motion sensing elements include one or more rollerballs mounted for rotation within a constraining housing disposed substantially within the sensing device.

82. (Previously added) The method of claim 81, wherein components of rotation of the rollerball, due to movement of the sensing device on the surface, are periodically measured.

83. (Previously added) The method of claim 82, wherein the components of rotation of the rollerball due to movement of the sensing device on the surface are measured by means of:

rollers disposed within the constraining housing for rotation, the rollers being configured to be driven by contact with the rotating rollerball; or  
optical sensing of rotation of the rollerball with respect to the constraining housing.

84. (Previously added) The method of claim 57, wherein the coded data is indicative of a plurality of positions, in or associated with the drawing field.

85. (Previously added) The method of claim 57, wherein the coded data includes a plurality of tags, each of which includes tag data.

86. (Previously added) The method of claim 85, including deriving the relative position of at least one tag using at least some of the at least one tag's tag data.

87. (Previously added) The method of claim 86, wherein the relative position is defined in relation to one of the group comprising a plurality of other tags, the surface, the drawing field and a zone associated with the drawing field.

88. (Previously added) The method of claim 85, including deriving an identity of the drawing field using at least some of the tag data of at least one tag.

89. (Previously added) The method of claim 88, wherein the data from which the identity of the drawing field is derived is the same in all tags of the same drawing field.

90. (Currently amended) A system for enabling a user to interact with computer software running in a computer system utilizing a form printed onto a surface, the form including information relating to the computer software, the surface having coded data indicative of a drawing field relating to the computer software disposed in or on the surface, the system including:

a computer system which:

receives indicating data and movement data from a sensing device, the indicating data indicative of a drawing field relating to the computer software and the movement data indicative of movement of the sensing device relative to the form, the sensing device, when placed operatively relative to the drawing field, generating the indicating data based at least partially on sensing at least some of the coded data and substantially simultaneously generating the movement data;

identifies, from the indicating data, the drawing field, and

operates the computer software at least partially based on reliance on the movement data and instructions associated with the drawing field.

91. (Previously added) The system of claim 90 including a printer for printing the form in response to receiving, in the computer system, a request for the form.

92. (Previously added) The system of claim 90 including a printer for printing the form and in which the printer prints the coded data at substantially the same time as the form.

93. (Previously added) The system of claim 90 wherein the computer system is configured to associate the movement data with the drawing field.

94. (Previously added) The system of claim 90, wherein the computer system is configured to perform written gesture recognition on at least some of the movement data.

95. (Previously added) The system of claim 90 wherein the computer system is configured to recognize whether the movement data is indicative of a written gesture drawn on the surface by the user.

96. (Previously added) The system of claim 94 wherein the computer system is configured, in the event that the written gesture is recognized, to operate the computer software in accordance with instructions associated with the written gesture.

97. (Previously added) The system of claim 95 wherein the written gesture includes a selection gesture.

98. (Previously added) The system of claim 97 wherein the selection gesture includes circumscribing or underlining at least some of the information.

99. (Previously added) The system of claim 90, wherein the computer system is configured to identify the user.

100. (Previously added) The system of claim 99, wherein the computer system is configured to identify the user by using the movement data.

101. (Previously added) The system of claim 99, wherein the computer system is configured to receive data indicative of an identity of the user.

102. (Previously added) The system of claim 90, wherein the computer system is configured to receive identity data from a memory of the sensing device, the identity data

being indicative of an identity of the user.

103. (Previously added) The system of claim 90, wherein the computer system is configured to send data to the computer software indicative of at least the drawing field.

104. (Previously added) The system of claim 90, wherein the drawing field is associated with a visible drawing zone defined on the surface.

105. (Previously added) The system of claim 90 which includes the sensing device.

106. (Previously added) The system of claim 105, wherein the sensing device includes at least one acceleration measuring device for measuring acceleration of the sensing device as it is used on the surface, the movement data being generated by periodically sampling the acceleration of the sensing device as it is used on the surface.

107. (Previously added) The system of claim 105, wherein the sensing device generates movement data in the form of a locus of the sensing means in relation to the surface, the locus being determined by ascertaining relative displacement of the sensing device.

108. (Previously added) The system of claim 107, wherein the relative displacement is obtained by doubly integrating acceleration with respect to time.

109. (Previously added) The system of claim 106, wherein the acceleration measuring device includes one or more accelerometers configured to measure at least two orthogonal components of acceleration.

110. (Previously added) The system of claim 105, wherein elements are disposed on the surface, the sensing device being configured to periodically sense elements as it is used on the surface, the movement data being generated by ascertaining relative displacement of the sensing means over time with respect to at least one of the elements.

111. (Previously added) The system of claim 110, wherein the elements are disposed on the surface as a regular array of dots, lines or other formations.

112. (Previously added) The system of claim 110, wherein the elements are disposed on the surface stochastically.

113. (Previously added) The system of claim 110 wherein the coded data includes the elements.

114. (Previously added) The system of claim 105, wherein the movement data is generated by ascertaining relative movement of one or more motion sensing elements rotatably mounted to the sensing device for contact with the surface while the sensing device is used thereon.

115. (Previously added) The system of claim 114, wherein the motion sensing elements include one or more rollerballs mounted for rotation within a constraining housing disposed substantially within the sensing device.

116. (Previously added) The system of claim 115, wherein components of rotation of the rollerball, due to movement of the sensing device when used on the surface, are periodically measured.

117. (Previously added) The system of claim 116, wherein the components of rotation of the rollerball due to movement of the sensing device by the user when used on the surface are measured by means of:

rollers disposed within the constraining housing for rotation, the rollers being configured to be driven by contact with the rotating rollerball; or  
optical sensing of rotation of the rollerball with respect to the constraining housing.

118. (Previously amended) The system of claim 90, wherein the coded data is indicative of a plurality of positions in or associated with the drawing field.

119. (Previously added) The system of claim 90, wherein the coded data includes a plurality of tags, each of which includes tag data.

120. (Previously added) The system of claim 119, wherein the computer system is configured to derive the relative position of at least one tag using at least some of the tag data of the at least one tag.

121. (Previously added) The system of claim 120, wherein the relative position is defined in relation to one of the following group: a plurality of other tags, the surface, the drawing field, and a zone associated with the drawing field.

122. (Previously added) The system of claim 118, where the computer system is configured to derive an identity of the drawing field using at least some of the tag data of at least one tag.

123. (Previously added) The system of claim 122, wherein the data from which the identity of the drawing field is derived is the same in all the tags of the same drawing field.

124. (Previously added) The system of claim 105 wherein the sensing device includes a marking nib.

125. (Previously added) The system of claim 105 wherein the sensing device contains identity information which imparts a unique identity to the sensing device.

126. (Previously added) The system of claim 125 when dependent on claim 102, wherein the identity data includes the identity of the sensing device.